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L1: Entry 1 of 5

File: USPT

Feb 6, 2001

US-PAT-NO: 6183856

DOCUMENT-IDENTIFIER: US 6183856 B1

TITLE: Opaque polymeric films and processes for making same

DATE-ISSUED: February 6, 2001

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|-------------|-----------|-------|----------|---------|
| Amon; Moris | Pittsford | NY | | |

US-CL-CURRENT: 428/318.4; 428/319.9

ABSTRACT:

A process for making an opaque, oriented polymeric film structure and the resultant film structures. The process comprises preparing a melt containing a crystallizable polymeric matrix material at a temperature of at least above the melting point of the polymeric matrix material and thereafter forming the melt into a sheet containing molten polymeric matrix material. The sheet containing molten material is then cooled to form a sheet containing amorphous polymeric matrix material and crystallites of the polymeric matrix material. The sheet while containing the amorphous polymeric matrix material is then formed into a film by stretching the sheet in at least one direction so as to form voids adjacent to at least some of the crystallites and thereby impart opacity to the film. Film structures made by the above process have a plurality of voids, at least some of the voids not containing a void-initiating particle and at least some of the voids being interconnected with an adjacent void in the polymeric matrix material, the number of voids being sufficient to impart a significant degree of opacity in the film structure.

11 Claims, 2 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 1

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| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | RMC | Draw Desc | Image |
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☐ 2. Document ID: US 6002064 A

L1: Entry 2 of 5

File: USPT

Dec 14, 1999

US-PAT-NO: 6002064

DOCUMENT-IDENTIFIER: US 6002064 A

TITLE: Stretch-thinned breathable films resistant to blood and virus penetration

DATE-ISSUED: December 14, 1999

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP | CODE | COUNTRY |
|--------------------------------|------------|-------|-----|------|---------|
| Kobylyvker; Peter Michailovich | Marietta | GA | | | |
| Hetzler; Kevin George | Alpharetta | GA | | | |

US-CL-CURRENT: 604/367; 428/323, 428/327, 428/339, 604/358, 604/366

ABSTRACT:

A stretch-thinned polymeric film is formed from a mixture of a polymer matrix including a low crystallinity propylene polymer having not more than about 30% crystallinity, with a particulate filler. The stretch-thinned film is breathable to water vapor yet resistant to penetration by liquids and viruses. The film can be laminated to a nonwoven web, and is useful in a wide variety of medical apparel and related products.

49 Claims, 5 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 2

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| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | RMC | Draw Desc | Image |
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☐ 3. Document ID: US 5947944 A

L1: Entry 3 of 5

File: USPT

Sep 7, 1999

US-PAT-NO: 5947944

DOCUMENT-IDENTIFIER: US 5947944 A

TITLE: Stretched-thinned films comprising low crystallinity polymers and laminates thereof

DATE-ISSUED: September 7, 1999

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|-------------------|------------|-------|----------|---------|
| Hetzler; Kevin G. | Alpharetta | GA | | |
| Jacobs; Rob L. | Woodstock | GA | | |

US-CL-CURRENT: 604/366; 428/221, 428/315.5, 525/240, 604/370

ABSTRACT:

The present invention relates to thin, elastomeric films made from low crystallinity propylene copolymers having a crystallinity of less than about 30%. The elastomeric films of the present invention have improved strength in the cross machine direction. The films may be incorporated into laminate materials used in the outer coverings of diapers, training pants, incontinence products and the like.

16 Claims, 2 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 2

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| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments |
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☐ 4. Document ID: US 4929303 A

L1: Entry 4 of 5

File: USPT

May 29, 1990

US-PAT-NO: 4929303

DOCUMENT-IDENTIFIER: US 4929303 A

TITLE: Composite breathable housewrap films

DATE-ISSUED: May 29, 1990

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|------------------|-----------|-------|----------|---------|
| Sheth; Paresh J. | Sugarland | TX | | |

US-CL-CURRENT: 156/209; 156/219, 156/244.11, 156/244.24, 156/309.6, 156/309.9, 264/173.1, 264/284, 264/DIG.62

ABSTRACT:

Composite breathable film comprising a breathable polyolefin film heat laminated to a nonwoven HDPE fabric. Preferably, the breathable film is prepared by melt embossing a highly filled polyolefin film to impose a pattern of different film thickness therein, and stretching the embossed film. The nonwoven fabric is made by cross-laminating HDPE fibers at the crossing points to form a thin open mesh fabric, and coextruding a heat seal layer thereon. The composite is made by heat laminating the breathable film to the heat seal layer of the fabric. The resulting laminate has excellent water vapor transmissibility, air resistance and strength and is

particularly adapted for use as a housewrap.

17 Claims, 0 Drawing figures

Exemplary Claim Number: 11

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| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments |
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☐ 5. Document ID: US 4777073 A

L1: Entry 5 of 5

File: USPT

Oct 11, 1988

US-PAT-NO: 4777073

DOCUMENT-IDENTIFIER: US 4777073 A

TITLE: Breathable films prepared from melt embossed polyolefin/filler precursor films

DATE-ISSUED: October 11, 1988

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|------------------|-----------|-------|----------|---------|
| Sheth; Paresh J. | Sugarland | TX | | |

US-CL-CURRENT: 428/155; 264/288.4, 264/288.8, 428/159, 428/317.9, 428/409, 428/910

ABSTRACT:

A breathable polyolefin film is prepared by melt embossing a highly filled polyolefin film to impose a pattern of different film thickness therein and by stretching the melt embossed film to impart greater permeability in the areas of reduced thickness in comparison to the areas of greater thickness.

29 Claims, 0 Drawing figures

Exemplary Claim Number: 1

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| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments |
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| FWMC | Draw Desc | Image |
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| 6002064S | 0 |
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| 4777073S | 0 |
| "4929303"[USPT] | 1 |
| 4929303S | 0 |
| "6183856"[USPT] | 1 |
| 6183856S | 0 |
| "5947944"[USPT] | 1 |
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L2: Entry 1 of 1

File: USPT

Apr 3, 2001

US-PAT-NO: H001955

DOCUMENT-IDENTIFIER: US H001955 H

TITLE: Polyolefin/filler films having increased WVTR and method for making

DATE-ISSUED: April 3, 2001

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|----------------------------|----------|-------|----------|---------|
| Middlesworth; Jeffrey Alan | Wauconda | IL | | |
| Brady; Kevin Arthur | Cary | IL | | |

US-CL-CURRENT: 524/427; 264/176.1, 264/288.4, 264/288.8, 428/155, 428/159, 428/317.9, 428/409, 428/457, 428/461, 428/910 , 524/425, 524/442, 524/445, 524/447, 524/448, 524/449, 524/450, 524/585, 524/81

ABSTRACT:

Films, made of polyethylenes and fillers, and articles made therefrom greater WVTR than previously available films based on conventional Ziegler-Natta based polyethylenes. The polyethylenes are produced in a metallocene-catalyzed production process. The films may be made by a cast film process, and may be made in widely varying filler content, generally polyethylene to filler ratios of 30/70 to 70/30. The metallocene based polyethylenes when combined with filler also permit the extrusion of thinner films leading to lighter weight and softer films. The m-polyethylenes utilized for making such films typically have a Composition Distribution Breadth Index above 50%, a M.sub.w /M.sub.n below 3, and a M.sub.z /M.sub.w below 2.

9 Claims, 2 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 1

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| (H001955[PN]).USPT. | 1 |

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